

Utility and perceptions about web-based academics among physicians during COVID-19 pandemic

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ABSTRACT

Introduction: Coronaviral disease-19 is the global challenge for medical fraternity and public health sector. Need of social distancing has compelled physicians and surgeons to continue medical education through virtual mode like webinar. **Objective:** To study the perceptions, practice and preferences of medical residents and professionals about webinar-based teaching. **Methods:** An internet-based google-sheet questionnaire was circulated via email and social media for opining different facts about webinar-based teaching. Responses were analysed further to find the facts and preferences. **Results:** Our study showed that majority of participants found webinars as a useful and sustainable mode of teaching however some of them felt it as an overdone action resulting in unnecessary stress. **Conclusion:** Teaching through virtual mode (e.g. webinar) is definitely a valuable tool for medical education especially during the need of social distancing. Its frequency, quantity, and quality should be monitored properly for the optimum outcome.

Keywords: Continuing medical education, Coronaviral disease-19 (COVID-19), health professions, pandemic, webinar

Introduction

Global Coronaviral disease-19 (COVID-19) pandemic has challenged almost every sectors of today's world. Health profession and medical care is possibly one of the worst hit field.^[1] The pandemic not only crippled the smooth propagation of ongoing clinical care system but also affected the momentum of medical education. Fast and persistent spread of this virus across the world impelled most medical and research institution to adopt and embrace an alternative mode of practice, teaching and training. Webinar based teaching in

place of classes and conference is one of these alternative modes.^[2] This virtual mode was required to continue the momentum of learning and limit the spread between health professionals which will ultimately keep medical care and education intact.

COVID-19 has truly changed the way medical teaching use to go and it will be time only to decide whether this alternative mode was as good as or better than the conventional method especially in resource strained countries including India. As social distancing was the need of the time, alternative method (webinar-based) was the only way to maintain continuous training, update and develop skills. The present study was conducted to gather and analyse the experience and preferences of medical residents and professionals regarding this webinar-based approach of medical teaching and training.

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Methodology

A cross-sectional online internet-based questionnaire survey was conducted on experiencing webinar and presenting webinar. Thirty-four different questions related to their perceptions, facts and preferences about webinar were circulated as google link through social media (WhatsApp, Facebook messenger, Emails) to several Asian physicians and surgeons. Single response was allowed for any respondent doctor. Their participation was totally within their will and identity was confidential. The responses were automatically recorded through google sheet and subsequently analyzed after 2 weeks without intermediate interference. Participants not ticking the consent question, or with incomplete forms were excluded from the study. Questionnaire was designed to include both qualitative and quantitative aspect of teaching and training via virtual mode like webinar. Questionnaire was distributed only to physicians who were doing residency or practicing in Asia were sent for filling their response. Written consent was taken from all participating doctors during entering their response in questionnaire. Study was approved from ethics committee (IEC/157/2020) (approved 22/06/2020). Data analysis was done on SPSS statistical software (version 23.0, IBM SPSS Statistics, USA).

Results

Among our 131 responses from physicians and surgeons of different Asian countries, one had denied consent and was excluded. Among remaining 130, experiences and their preferences regarding various aspects of webinars were detailed and analysed [Table 1a and b].

Majority (55.4%) were postgraduate whereas 27.7% were graduate and 16.2% postdoctoral medical persons. Among them, majority were 64.6% were residents whereas 26.2% were medical officers. Among all, most of them (54.6%) were affiliated with medical college and 29.2% were in academic or research centre [Table 1a].

Our survey depicted that 63.1% participants were having the frequency of the conventional classes before this pandemic was 6-12 classes per week. Before pandemic, 36.2% of the participants attended webinar only once ever. However, during COVID-19 period, 39.2% attended more than 5 webinars and 44.6% of them attended webinar 2-4 webinar. While 37.7% attended more than 5 webinars on COVID topics, 34.6% attended 1-2 webinars only. One third participants said that no webinar was organized at their centre during COVID.

Around 3/4th (77.7%) participants presented 5 or more academic webinar during COVID period whereas 1.5% did not present any webinar. Eighty-seven percent (87%) of the participants were opining that frequency of webinar should be daily. More than half of all participants preferred holidays and one third (31%) preferred weekdays as the ideal day for webinars. Evening time for webinar was found to be effective by 48.5%. Webinars were

suggested to be continued in various ways after COVID-19 period by 87% participants. Among them, 65.6% were of opinion that webinar should be continued after pandemic in equal proportion or as an adjuvant to conventional class. Only 2% opined that it should be never used after pandemic.

Most common gadget used for webinar was mobile (58.5%). Half of them (50.8%) preferred home for attending webinar. For presenting webinar, 90.8% preferred office as presenting place. Almost 90% of the participants attends webinar alone. Totally, 30-45 minutes period was voted as ideal by 57.7%. Webinar hindered works in one fourth doctors. Half participants said that post webinar interaction should be 10 minutes and a moderator is preferable for conducting webinar. Among all, 26.2% said that concentration is better in webinar than in classroom while 29.2% were opining that concentration in webinar and classroom is equal.

Four out of five participants (80.8%) said that webinar recording is useful while 71.5% said that pre- and post-webinar questionnaire should be practiced. 83.8% were opining that webinar can be used for case discussion.

Majority (91%) participants found the webinars were useful enough to make them acquainted on that topic and 86% found themselves updated when they attended webinar with attention. Nearly 70% of them had technical issue at least once while conducting webinar. Similar surveys were participated by 88.5% on webinar during pandemic. Around 37% said that webinar can be made better by better timing (holidays, evening, 30-45 minutes, better interaction), pre- and post-questionnaire, and coverage. Almost half said that conventional classroom is better for better understanding and concentration. Ongoing webinar were found to be less interactive by 33% while 33.8% labelled most ongoing webinars as 'waste of time'. Sixteen (12.3%) participants argued that webinars have increased stress in residents and professionals whereas 44.6% opined that it helpful and should be done more frequently [Table 1b]. On comments, participants concluded that webinars should be done frequently as it keeps continuity of learning. As per their responses, though webinars help us to be updated without travel and labour of conventional classes and conferences, it sometimes results stress and lack of concentration during work and hectic schedules.

Discussion

Webinars and online-module training are well-known mode of teaching in the field of clinical and public health practitioners.^[3] Blended online courses are used in different scientific teaching and training.^[4,5] In usual situation, webinar offers a convenient and flexible way of participating academics. In situation like COVID-19 pandemic, where social distancing is desirable, webinar is only way to continue classes and courses.

Humans are gregarious in nature. It's a basic human tendency to prefer physically real-life interactive sessions in normal

Table 1: Demographics, responses, and preferences of the participant doctors

A. Characteristics	Categories	Frequency (%)	B. Preferences	Categories	Frequency (%)
1. Highest Degree of participating doctor	a. MBBS (Graduate)	36 (27.7%)	1. Ideal day for webinar	a. Weekdays	40 (30.8%)
	b. Doctor of medicine/DNB (Postgraduate)	72 (55.4%)		b. Saturday only	18 (13.8%)
	c. Doctorate of medicine/Postdoctoral	21 (16.2%)		c. Sunday	25 (19.2%)
	d. Others	1 (0.8%)		d. Holiday only	47 (36.2%)
2. Position of participant	a. Intern	10 (7.7%)	2. Ideal time for webinar	a. Morning	11 (8.5%)
	b. House staff/RRHP/Medical Officer	34 (26.2%)		b. Afternoon	20 (15.4%)
	c. Junior resident (PGT)	46 (35.4%)		c. Evening	63 (48.5%)
	d. Senior resident/Registrar	38 (29.2%)		d. Night	17 (13.1%)
	e. Faculty	2 (1.5%)		e. Does not matter	19 (14.6%)
3. Place of work	a. Private clinic	15 (11.5%)	3. Preference of attending webinar	a. Alone	118 (90.8%)
	b. Medical College	71 (54.6%)		b. With another friend	8 (6.2%)
	c. District Hospital	6 (4.6%)		c. In group ≥ 3	4 (3.1%)
	d. Academic/Research centre	38 (29.2%)		d. < 30 min	24 (18.5%)
4. Usual Frequency	a. None	27 (20.8%)	4. Ideal duration desirable for webinar	b. 30-45 min	75 (57.7%)
	b. 1-6 per week	82 (63.1%)		c. 60 min	28 (21.5%)
	c. 6-12 per week	13 (10%)		d. > 1 h	3 (2.3%)
	d. > 13 per week	8 (6.2%)			
5. Webinar before pandemic	a. Yes, regularly (> 1 in a week)	13 (10%)	5. Post webinar interactive time duration preferred	a. None	3 (2.3%)
	b. Yes, Occasionally (> 1 in a month)	15 (11.5%)		b. 10 min	67 (51.5%)
	c. Total 2-10 webinars ever	30 (23.1%)		c. 15-20 min	42 (32.2%)
	d. Only once ever	25 (19.2%)		d. 20-30 min	13 (10%)
	e. Never	47 (36.2%)		e. Equal time for presentation and interaction	5 (3.8%)
6. Webinar during COVID pandemic period	a. Yes; 1-2 webinar (total)	29 (22.3%)	6. Requirement of moderator	Yes	76 (58.5%)
	b. Yes; 2-4 webinar (total)	29 (22.3%)		No	54 (41.5%)
	c. Yes; ≥ 5 webinar (total)	51 (39.2%)			
	d. No	21 (16.2%)			
7. Webinar on COVID-19 topics	a. Yes; 1-2 webinar (total)	45 (34.6%)	7. Need of webinar after COVID-19	a. equal webinar and conventional class	42 (32.3%)
	b. Yes; 2-4 webinar (total)	22 (16.9%)		b. as usual adjunct only	43 (33.1%)
	c. Yes; ≥ 5 webinar (total)	14 (10.8%)		c. Occasional only	31 (23.8%)
	d. No	49 (37.7%)		d. Should never be used after pandemic	12 (9.2%)
8. Presented for a webinar	a. Yes; 2 webinar (total)	19 (14.6%)	8. Use of recorded webinar in future	e. Others	2 (1.5%)
	b. Yes; 3-4 webinar (total)	5 (3.8%)		a. Useful	105 (80.8%)
	c. Yes; ≥ 5 webinar (total)	3 (2.3%)		b. Useless	11 (8.5%)
	d. Yes; 1 webinar (total)	2 (1.5%)		c. Should not be done	14 (10.8%)
	e. No	101 (77.7%)			
9. Gadget used for webinar	a. Laptop	38 (29.2%)	9. Need of pre- and post-webinar	Yes	93 (71.5%)
	b. Desktop	3 (2.3%)		No	37 (28.5%)
	c. Mobile	76 (58.5%)	10. Value of webinar for case discussion	Yes	109 (83.8%)
	d. Tablets	12 (9.2%)		No	21 (16.2%)
	e. Others	1 (0.8%)			
10. Hindrance for smooth work	Yes	35 (26.9%)	11. For improved webinar	a. Better timing	7 (5.4%)
	No	95 (73.1%)		b. Better technology	3 (2.3%)
11. Concentration on webinar	a. Much more than conventional	34 (26.2%)	c. Pre- and post-session questionnaire	7 (5.4%)	
	b. Equal	38 (29.2%)	d. Audio-visual	9 (6.9%)	
	c. Less than conventional	9 (6.9%)	e. Active participation	15 (11.5%)	
	d. depends upon topic and situation	44 (33.8%)	f. Better timing and technology	22 (16.9%)	
	e. can not say	5 (3.8%)	g. Better technology and audio-visual	10 (7.7%)	
			h. c, d, e	48 (36.9%)	
			i. Better timing, questionnaire, and participation	9 (6.9%)	

Contd...

Table 1: Contd...

A. Characteristics	Categories	Frequency (%)	B. Preferences	Categories	Frequency (%)
12. International webinar organized by your institute	a. Yes; 1-4 (total)	46 (35.4%)	12. Webinar vs. Conventional class	a. Better than conventional	36 (27.7%)
	b. Yes; 5-9 (total)	17 (13.1%)		b. classroom teaching is better	64 (49.2%)
	c. Yes; ≥10 (total)	23 (17.7%)		c. All are same	24 (18.5%)
	d. None	44 (33.8%)		d. None are better; should change mode of medical teaching completely	6 (4.6%)
13. Is your query answered in the webinar?	1	30 (23.1%)	13. Disadvantage	a. less interactive	43 (33.1%)
	2	100 (77%)		b. less fruitful	7 (5.4%)
14. Technical issues during webinar	a. Yes; only once	33 (25.4%)	14. True of webinar	c. waste of time	44 (33.8%)
	b. Yes; several times	60 (46.2%)		d. less concentration	6 (4.6%)
	c. Never	37 (28.5%)		e. increases stress	16 (12.3%)
15. Similar survey	Yes	15 (11.5%)		f. Combined among above	14 (10.8%)
	No	115 (88.5%)		a. Should not be done during pandemic	5 (3.8%)
16. Site of attending webinar	a. Office/workplace	26 (20.0%)		b. Should be done more frequently	58 (44.6%)
	b. Room/house	66 (50.8%)	c. Should be done occasionally only	40 (30.8%)	
	c. Car/Isolated area	23 (17.7%)	d. Useless	10 (7.7%)	
	d. Does not matter	15 (11.5%)	e. cause of stress	17 (13.1%)	

situations. But in the lockdown due to COVID-19 pandemic, online teaching or meeting modules provided an opportunity for continuous synchronous learning, sharing opinions and taking decisions irrespective of own physical location. As a result, numbers of webinars increased enormously in medical fraternity during this pandemic. This module has enabled physicians to learn from workplace or home with worldwide potential and interactions irrespective of messy and unpredictable timetable.^[2,6,7]

Though there is enormous increase in webinar frequency and content in the time of epidemic, there is paucity of data about the participant's perception and utility of webinar in such stressful situation. We conducted this study to reveal the physician's perceptions and characteristics of such webinars through an internet-based cross-sectional survey with questionnaire.

We observed high appraisal and rating of webinar for the learning purposes. Though there were few stress-related and burden-related highlights from participants, majority of participants were in favour of such module of teaching. Webinar was found to be an effective replacement for conventional teaching for the lockdown period.

While Italy and Spain had imposed lockdown since March 9 and 13 respectively, United Kingdom and India went into national lockdown since 24 March 2020. As the countrywide lockdown were imposed in several countries one after another, numbers of webinars increased progressively day by day being the only module for continuing academics with social distancing. Video-conferencing applications like Zoom, Webex or Google meet suddenly became the popular trends for medical teaching. Apart from academics, several medical institutes have initiated web-based counselling and online psychotherapy through smart-learning modules via video-conferencing applications.^[8]

Worldwide international conferences are also converted into virtual webinars after COVID-19 pandemic.

Though there is possibility of technical difficulties, stress and additional burden due to frequent webinars during COVID duties, technological advances and high-quality multifunctional modalities for online meetings have made this module quite fruitful and praiseworthy especially in situation requiring social distancing. While mushrooming of webinars might result a confusion and poor outcome, balanced participation of webinars will enable us to continue learning, and spreading messages to all physicians or surgeons during anytime. Webinars, thus, are proven to be an adjunct to conventional classes for all time for medical teaching.

European countries like Italy, Spain, Germany had used internet based smart-teaching loops and webinars to continue academics and to propagate the guidelines during COVID-19.^[9] Online basic laparoscopic urological skills (BLUS) e-courses are effective mode to teach surgical skills to trainees.

Webinar is a widely accepted and adopted module of medical academics. Since the development in technology, webinar is being increasingly being used as a convenient way of conveying courses, classes, guidelines, and innovations around the globe. Weston *et al.* reported significant benefits for physicians through online continuing medical education (CME) in usual training.^[10] Gupta *et al.* conducted a cross-sectional online survey regarding healthcare online learning and observed that online networks improvise the participants' quality of care and disseminate new ideas and opinions.^[11] On one hand, social media is increasingly being an adjunct for the awareness and easy pursual of spreading of innovations and guidelines.^[12] On the other hand, Internet-based classes and meetings are increasingly becoming a convenient way to keep updated with CME, scientific knowledge, and medical competencies.^[13]

Avila *et al.* observed the significant utility of webinars to deliver scientific knowledge and information in their web-based abstractor training session at designated sites.^[14] O'Brien *et al.* reported a significant effect of previous training through any modality (conventional or webinar-based) to medical doctors for patient counselling.^[15] Four (9.75%) among 41 physicians had used webinar-based training in their cohort.

Online teleconferencing was found to be significantly helpful and behaviour-changing among the women gamblers in normal social situations.^[16] Merritt *et al.* effectively applied the web-based workshops to implement skill development series among young researchers of high as well as low-income countries.^[17]

Regarding webinar-based teaching, Nadama *et al.* conducted an assessment of webinar-based education among students of the United Kingdom.^[18] Among the responders to their questionnaire, almost 4/5th of them had never attended a webinar before and more than 90% agreed that webinars provide significant convenience and freedom regarding learning, location, and timing. They found that webinars were effective to deliver the message to participants. Webinars were effectively used as an acceptable and comfortable module of teaching behaviour therapy and coping flexibility teaching among employees in the workplace.^[19]

In a qualitative study by Kimura *et al.*, webinars were found to be the mode of sharing true information and developments around wider geographical distribution easily and conveniently.^[20] Webinars were not only cost-effective but also a platform equally feasible for all for person to person interaction. This provides a hint towards an effective emerging online module for medical academics. Webinar was also found to be significantly useful to augment the knowledge of participants in a survey investigating the effectiveness of webinar.^[21] Our study has strengthened the idea of brighter aspects of webinars. At the same time, it has emphasized the hindrance due to untimely and poorly prepared mushrooming of webinars on physicians. However, it has also established the importance of webinars in mixing-restricted situations as well as in normal time.

Popularity of webinar has been drastically increased in COVID time as indicated by numbers of publications on web-academics. Bell *et al.* shown that more than 90% of dentists in their study opined it as beneficial.^[22] A review by Hari Prasetyono *et al.* concluded webinars with shorter duration to have increased participation and better outcome.^[23] Serebrakian *et al.* had shown that webinars during COVID have benefitted medical residents to augment their confidence and knowledge.^[24] Patel *et al.* found webinars being less utilized for different learning purposes in comparison to popular traditional ways.^[25] Review by Ali *et al.* revealed free webinars make more training hours available for surgery trainees during COVID pandemic.^[26] Our study has explored all possible merits, demerits and preferences. We found similar results

like increased utility of webinar, convenient learning without stress of venue and increased class hours.

Our study has established the evidence regarding the utility and implications of medical webinars from the physician's point of view. This study is unique for qualitative and quantitative assessment of characteristics and perceptions about webinars by medical doctors. This study might stand as a milestone study for establishing a utility of webinars as professional medical teaching in usual situation as well as in the disaster period.

This study contributes significantly to all medical students and practitioners especially primary care physicians. COVID-19 pandemic has changed the dimensions and way of living life. Web-based teaching is principal way of getting updates and continuing education with social distancing at our own place. It has own merits and demerits. This study is a novel one regarding the physician's perspective on web-based teaching especially during COVID-19 pandemic. Our study has evaluated the facts and opinions from current physicians and medical residents from Asia on this issue. Study results will keep physicians informed to pursue the best ways for better output and more productive web-hours. Study has also explored the issues of possible effects of overburdening of webinars during working days. It has provided the data regarding preferences of physicians for web-academics. This will help primary care physicians to plan upcoming webinars in proper ways for themselves and their residents.

Understandably, there were several limitations to our survey. First, this is an internet-based survey spreading through social media. So, it might not represent the perception of the whole fraternity. Second, differences might exist for webinar preferences according to the situations like burden of patient flow (including COVID-19 patients), fears, work stress in pandemic time, environmental feasibilities, and personal choices. Third, it's a cross-sectional study within all available medical persons. Larger studies with clusters of representative responses from different geographic and environmental settings with the baseline values for comparison are desirable.

Conclusion

Our study has shown that the majority of the medical practitioners and residents were benefitted from virtual mode teaching like webinars. Webinars were organized before the pandemic also but it has become the sole module of teaching and learning during the lockdown and social distancing for COVID-19. This has kept the medical education process intact and updated in the whole fraternity. Mushrooming of webinars might lead to a decrease in the quality of education. Moreover, excessive webinars at odd and overlapping timing may lead to confusion and hindrance in smooth learning and acquiring updates. This study has also depicted favourable preferences of the doctors regarding quantity, frequency, and quality of webinar-based teaching which may be vital for improvement for

more effective virtual teaching. Additionally, larger international longitudinal surveys will be favourable to conclude the findings to be uniformly applicable for larger geographic importance.

Key Points

1. Web-based teaching has been increased in COVID-19 time.
2. Webinars have enabled medical education to continue uninterrupted which has ultimately established its importance at subsequent normal period also.
3. Untimely and excessive overlapping webinar may cause impairment of quality education and result in stress in residents and primary care physicians.

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Consent to participate and to publish

Written web-based consent for publication of their perceptions, experience and preferences were obtained from all participant doctors.

Ethical approval

Approval for the study was obtained. The manuscript has been approved by Departmental Review Board. Procedures done in the study were as per the institutional, national guidelines and as per Helsinki declaration of 1975, as revised in 1975.

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Conflicts of interest

There are no conflicts of interest.

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